WHAT IS CLAIMED IS:

1. A method of bonding contact pads on a microelectronic element to conductive features on a connection component comprising:

(a) juxtaposing the microelectronic element and connection component so that the contacts and conductive features are aligned with one another, and providing bonding material between the aligned contacts and conductive features;

(b) temporarily heating the microelectronic element and then cooling the microelectronic element so that the bonding material liquifies and forms bonds between the contacts and conductive features, the temporary heating and cooling steps being performed so that the microelectronic element is at a higher temperature than the connection component during formation of said bonds.

2. A method as claimed in claim 1 wherein said temporary heating and said cooling are performed while maintaining the microelectronic element, connection component and bonding material under a subatmospheric pressure.

3. A method as claimed in claim 1 further comprising maintaining said connection component in heat transfer relationship with a temperature stabilizing element during said temporarily heating and cooling.

4. A method as claimed in claim 3 wherein said connection component includes a body incorporating a polymer having a glass transition temperature, said temperature stabilization element being maintained below the glass transition temperature of the polymer.

5. A method of bonding microelectronic elements to components comprising the steps of:

(a) providing one or more microelectronic elements and one or more components, and a deformable barrier so that conductive features of said microelectronic elements and

components confront one another within a working space at least partially bounded by said deformable barrier;

(b) maintaining within said working space a partial pressure of oxygen below about 160 Torr and a total absolute pressure lower than a total absolute pressure prevailing outside of said working space so that a pressure differential on said barrier urges said barrier into the working space and said barrier will urge conductive features on said one or more microelectronic elements into engagement with conductive features on said one or more components; and

(c) activating a bonding material between said conductive features of said one or more microelectronic elements and said one or more components, said activating step occurring at least partially during said maintaining step.

6. A method as claimed in claim 5 wherein said deformable barrier includes a flexible film separate from said one or more microelectronic elements and separate from said one or more components, said one or more microelectronic elements being disposed between said film and said one or more components during said maintaining step.

7. A method as claimed in claim 5 wherein said step of activating a bonding material includes momentarily heating the bonding material and said conductive features.

8. A method as claimed in claim 7 wherein said bonding material includes solder.

9. A method as claimed in claim 8 wherein said activating step is performed in the absence of flux.

10. A method as claimed in claim 5 wherein said activating step is performed with ambient atmospheric conditions outside of said working space.

11. A method of making microelectronic assemblies comprising the steps of:

(a) providing one or more microelectronic elements in a working space between a flexible film and one or more

components so that a front face of each said microelectronic element with conductive features thereon confronts a front face of a component having conductive features thereon, so that a rear surface of each said microelectronic element faces upwardly away from said one or more components and toward said film, and so that the conductive features of said elements and components are aligned with one another;

(b) maintaining said working space under an absolute pressure less than an absolute pressure prevailing outside of said working space so that said film urges said one or more microelectronic elements downwardly against said one or more components and biases said conductive features into engagement with one another; and

(c) during said maintaining step, directing radiant energy into said working space through said film and onto said one or more microelectronic elements to thereby momentarily heat said engaged conductive features and activate a bonding material on said engaged conductive features to bond said engaged conductive features to one another.

12. A method as claimed in claim 11 wherein said step of maintaining said working space includes maintaining said working space at a subatmospheric pressure and said step of directing radiant energy is performed while a outer surface of the film facing upwardly away from said working space is exposed to ambient atmospheric pressure.

13. A method as claimed in claim 12 wherein said providing step includes disposing said one or more components on an upper surface of a fixture and said step of maintaining said working space at a subatmospheric pressure includes sealingly connecting a peripheral region of said film to said one or more components or to said fixture and withdrawing gas from said working space.

14. A method as claimed in claim 12 further comprising flushing said working space with a non-oxidizing gas before bringing said working space to said subatmospheric pressure.

15. A method as claimed in claim 11 wherein said working space is maintained at a partial pressure of oxygen less than about 160 Torr during said step of directing radiant energy.

16. A method as claimed in claim 15 wherein said bonding material includes a solder.

17. A method as claimed in claim 11 wherein said flexible film is sealingly connected to said rear surface or surfaces of said one or more microelectronic elements, the method further comprising the step of injecting a curable material between said flexible film and said one or more components to thereby encapsulate said conductive features, said flexible film protecting said rear surfaces of said one or more microelectronic elements from said curable material during said injecting step.

18. A method as claimed in claim 11 wherein said conductive features include leads, the method further comprising the step of moving said microelectronic elements and said one or more components away from one another to thereby deform said leads.

19. A method as claimed in claim 18 wherein said providing step includes temporarily securing said microelectronic elements in position relative to said one or more components, said temporary securement being detached before or during said moving step.